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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,428	01/29/2002	Andy Catalin Negoi	PHCH010005	5576
24737	7590	10/17/2003	EXAMINER	
			TRA, ANH QUAN	
			ART UNIT	PAPER NUMBER
			2816	

DATE MAILED: 10/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	10/059,428	NEGOI, ANDY CATALIN	
	Examiner Quan Tra	Art Unit 2816	

-- The MAILING DATE of this communication appears in the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 13 August 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.
- 4) Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,2 and 8-10 is/are rejected.
- 7) Claim(s) 3-7 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/13/2003 has been entered. A new ground of rejection is introduced as necessitated by amendment.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art figures 1 and 2 in view of Rapp (USP 5280420).

As to claim 1, the prior art figures 1 and 2 show a charge pump device containing at least two stages (S1-Sn), whereby a stage (S1) comprises a switch (Sw1) and a charge device (CS1) which are arranged to generate a voltage higher than a supply voltage (IN), whereby the stages (S1-Sn) are arranged in series and a required multiplication factor of the charge pump is adjustable by activating/deactivating a definable number of stages, whereby the switches (S1-Sn) of each stage are arranged in the same way and further comprising a gate switch control unit (Cb) that controlling the gate of transistor MP1 in figure 2). Thus, figures 1 and 2 show all limitations

of the claim except for the gate switch control unit comprises at least one transistor. However, Rapp teaches in column 7, lines 10-16, that capacitor connected transistors are more efficiently implemented in silicon than regular capacitors. Therefore, it would have been obvious to one having ordinary skill in the art to use capacitor connected transistor for the capacitor C_b in the prior art figure 2 for the purpose of implementing the capacitor in silicon more efficiently.

As to claim 2, the prior arts fail to teach “for a multiplication factor (MF) smaller than the maximal possible multiplication factor (Mfmax) the stages (S₁-S_n) beginning from an input (IN) of the charge pump device will be deactivated”. However, it is notoriously well known in the art that the multiplication factor of the charge pump circuit is proportional to the number of the stages in the charge pump. Therefore, it would have been obvious to one having ordinary skill in the art to deactivate some of the charge pump stages beginning from the input of the charge pump device for the purpose of reducing the multiplication factor of the charge pump, thereby reducing the output voltage.

4. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Messager (USP 6346903) in view of Applicant's prior art figure 1 and Rapp (USP 5280420).

Messager's figure 1 shows a display module (circuit figure 1) having a display driver (CC) for providing display information and voltages to a display unit (LCD DISPLAY) with a charge pump device (CHARGE PUMP). Thus, Messager's figure 1 shows all limitations of the claim except for the detail of the charge pump circuit. However, the combination of Applicant's figure 1 and Rapp reference (see the rejection of claim 1) shows a charge pump circuit comprising at least two stage (S₁-S_n), whereby a stage (S₁) comprises a switch (Sw1 and circuit, not shown, that generating the control signal to Sw1) comprising a gate switch control unit (C_b

in figure 2 that controlling the gate of transistor MP1) comprising at least one transistor (capacitor Cb is replaced with capacitor connected transistor) and a charge device (Cs1) which are arranged to generate a voltage higher than the supply voltage (IN), whereby the stages (S1-Sn) are arranged in series and a required multiplication factor of the charge pump is adjustable by activating/deactivating a definable number of stages, whereby the switches (S1-Sn) of each stage are arranged in the same way. The prior art figure 1 having the advantage of providing a stable charge pump voltage. Therefore, it would have been obvious to one having ordinary skill in the art to use the charge pump in the prior art figure 1 to Message's charge pump circuit for the purpose of providing a stable charge pump voltage.

Allowable Subject Matter

5. Claims 3-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 3-7 are objected because the prior art fails to teach a circuit (such as figure 3) having elements comprising boot capacitor (Cb) and switch control unit (GSU) arranged to control the gate of switch MP1.

Response to Arguments

6. Applicant's arguments have been fully considered but they are not persuasive. Applicant argues that AAPA fails to recite or suggest a gate switch control unit made up of at least one transistor. However, the combination of AAPA and Rapp teaches the gate switch control unit made up of at least one transistor.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. These references are cited as interest because they show some circuits analogous to the claimed invention.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan Tra whose telephone number is 703-308-6174. The examiner can normally be reached on 8:00 A.M.-5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 703-308-4876. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


QT
September 22, 2003



Quan Tra
Patent Examiner